CHAPTER 2: FLUID STATICS

CHAPTER OUTLINE
1. Pressure at a point
   a. Body vs. surface forces
   b. Normal and shear stresses
   c. Definition
   d. Absolute vs. gage pressure
   e. Pressure directionality

2. Pressure field
   a. Pressure distribution in the horizontal direction
   b. Pressure distribution in the vertical direction
   c. Pressure gradient and equation of motion for a fluid with no shear stress
      (handout 2.1)

3. Pressure measurement devices
   a. Barometer
   b. Manometer
   c. Example (handout 2.2)

4. Hydrostatic force on a plane surface
   a. Procedure (handout 2.3)
   b. Example (handout 2.4)

5. Hydrostatic force on curved surfaces
   a. Procedure (handout 2.5)
   b. Example (handout 2.6)

6. Buoyancy and stability
   a. Horizontal force on submerged/floating body
   b. Vertical force on submerged/floating body
   c. Stability (handout 2.7)

7. Fluids in rigid-body motion
   a. Definition
   b. Example

CHAPTER OBJECTIVES
At the end of this chapter, you should be able to:
- Determine the variations of pressure in a fluid at rest
- Calculate pressure using various kinds of manometers
- Calculate the forces exerted by a fluid at rest on plane or curved submerged surfaces
- Analyze the rigid-body motion of fluids in containers during linear acceleration or rotation